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Kenji Shiga

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KENYON & KENYON LLP  
1500 K STREET N.W.  
SUITE 700  
WASHINGTON, DC 20005

EXAMINER

JONES JR., ROBERT STOCKTON

ART UNIT

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1796

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/594,031	<b>Applicant(s)</b> SHIGA ET AL.	
	<b>Examiner</b> ROBERT JONES JR.	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06/16/2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Status*

5            Claims 1-6 are cancelled. Claims 7, 8, 10, 13, 15, 17, 18, 20, 25, 26, 28, 31, and 33 have been amended. New Claims 37 and 38 have been added. Claims 7-38 are currently pending.

### *Claim Rejections - 35 USC § 112*

10

The following is a quotation of the first paragraph of 35 U.S.C. 112:

15

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 7-38 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one skilled

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in the pertinent art to make and use the claimed invention. The standard for determining whether the specification meets the enablement requirement was cast in the Supreme Court decision of *Mineral Separation v. Hyde*, 242 U.S. 261, 270 (1916) which postured the question: is the experimentation needed to practice the invention undue or

5     unreasonable? That standard is still the one to be applied. In *re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). Accordingly, even though the statute does not use the term “undue experimentation,” it has been interpreted to require that the claimed invention be enabled so that any person skilled in the art can make and use the invention without undue experimentation. In *re Wands*, 858 F.2d at 737, 8 USPQ2d at  
10    1404 (Fed. Cir. 1988).

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is “undue.” These factors include, but are not limited to:

- 15           (A) The breadth of the claims;
- (B) The nature of the invention;
- (C) The state of the prior art;
- (D) The level of one of ordinary skill;
- (E) The level of predictability in the art;
- 20           (F) The amount of direction provided by the inventor;
- (G) The existence of working examples; and

(H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure. In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

Independent Claims 7, 17, and 25 have been amended to require an amorphous polyester resin (I) "reacted partially with" a reactive compound (II). Newly presented Claim 38 additionally requires "partially reacting" (I) with (II). The claims are sufficiently broad to include compositions wherein only a portion of all molecules making up (I) are reacted with (II) and compositions wherein all molecules making up (I) react with (II), but wherein only a portion of functional groups within a multifunctional molecule are reacted. These are two entirely different scenarios, and will result in materially different products. Furthermore, neither an amount making up the partial portion of (I) nor a percentage of total functional groups to be reacted is included in or defined by Claims 7, 17, 25, or 38 or any of their dependent claims, thus allowing for a vast number of combinations and resulting products.

The applicant points to page 5, lines 7-11 for support of this newly added limitation. This portion of the specification is reproduced below:

In order to attain the above object, the present inventors intensively studied and, as a result, found out that all of the above problems can be solved by kneading in advance an amorphous polyester (I) and a reactive compound (II) containing two or more glycidyl groups and/or isocyanate groups per one molecule and having a weight average molecular weight of not less than 200 and not more than 500 thousands to react a part of them to obtain a modifier and, then, blending the modifier into an amorphous polyester resin (III) and/or a crystalline polyester resin (IV) to mold this, which resulted in completion of the present invention.

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Particularly, lines 10-11 recite the phrase "to react a part of them". This is the only portion of the specification which makes any mention of any sort of partial reaction. As with the claims discussed above, the specification is sufficiently vague to include compositions wherein only a portion of all molecules making up (I) are reacted with (II) and compositions wherein all molecules making up (I) react with (II), but wherein only a portion of functional groups within a multifunctional molecule are reacted. Based on this level of instruction, one of ordinary skill in the art would not have any reasonable expectation of success when attempting to carry out the claimed invention.

The working examples presented in the instant specification fail to provide any further clarification with respect to the phrases "partially reacted with" or "partially reacting" recited by the instant claims. Example 1 illustrates the reaction of an amorphous polyester resin with a reactive compound (p. 22, lines 17-25):

<Example 1>

90% by weight of an amorphous polyester resin (A), 10% by weight of a reactive compound (I), 1.0 part by weight of bis[S-(4-tert-butyl-3-hydroxy-2,6-dimethylbenzyl)]thiobisphthalate, and 0.33 part by weight of glycerin monostearic acid ester were mixed, the mixture was melted and kneaded with an extruder (L/D = 30, screw diameter = 20 mm, full flight, compression ratio 2.0) set at a rotation number of 30rpm, and a whole barrel temperature of 220°C, extruded into a string through a nozzle, cooled in water, cut with a cutter, and pelletized to obtain a modifier for a polyester resin.

This example does not appear to involve a partial reaction of any sort. If a partial reaction does take place, it is not at once apparent to one of ordinary skill in the art. There is no mention of controlling conditions to ensure that only partial reaction occurs.

Additionally, there is no monitoring of reaction progress to indicate the degree or extent to which the polyester resin and reactive compound have reacted with one another.

Example 10 illustrates the only other example involving reaction of an amorphous polyester resin with a reactive compound (p. 29, lines 8-16):

<Example 10>

90 parts by weight of an amorphous polyester resin (B) and 10 parts by weight of a reactive compound (I) were mixed, the mixture was melt-kneaded with an extruder (L/D = 30, screw diameter = 20 mm, full flight, compression ratio 2.0) set at rotation number of 30 rpm, and a whole barrel temperature of 190°C, extruded into a string through a nozzle, and cut with a cutter in water to obtain a pelletized modifier for a polyester resin. Then, 20 parts by weight of the resulting modifier for a polyester resin, and 80 parts by weight of reproduced polyethylene terephthalate (reproduced PET: YPR flake) were dry-blended, and the following various moldings were performed.

Example 10 does not appear to involve a partial reaction of any sort, similar to Example 1, and similarly fails to convey to one of ordinary skill in the art a means for partially reacting or a way of determining when the two components have reacted sufficiently.

The prior art (see, for example, US Pat. No. 7,084,214 to Shiga, cited and discussed in detail in the previous action) does not teach partially reacting polyester resins similar to (I) with reactive compounds similar to (II) in sufficient detail to convey the meaning of the term in question to one of ordinary skill in the art. Additionally, the nature of chemistry, and particularly polymer chemistry, is highly unpredictable. One of ordinary skill in the art would not have any reasonable expectation of success when attempting to carry out the present invention as claimed.

As discussed above, the phrases "partially reacted with" or "partially reacting" recited by the instant claims are not sufficiently described within the specification in

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such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Based on the lack of direction provided within the specification, the failure of the working examples to remedy this lack of direction, the state of the prior art, and the high degree of unpredictability within the art of polymer chemistry, the claimed invention is not enabled so that any person skilled in the art can make and use the invention without undue experimentation.

Claims 8-16 depend from Claim 7; Claims 18-24 depend from Claim 17; and Claims 26-37 depend from Claim 25. Thus, these dependent claims are similarly rejected for failing to comply with the enablement requirement.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent Claims 7, 17, and 25 have been amended to require an amorphous polyester resin (I) "reacted **partially** with" a reactive compound (II). Newly presented Claim 38 additionally requires "**partially** reacting" (I) with (II).

The newly added limitations are sufficiently broad to include a number of compositions, including compositions wherein only a portion of all molecules making up (I) are reacted with (II), as well as compositions wherein all molecules making up (I) react with (II), but wherein only a portion of functional groups within a multifunctional



molecule are reacted. These are two entirely different scenarios, and will result in materially different products. It is unclear what type of partial reaction is to occur in order to satisfy the claims. Thus, Claims 7, 17, 25, and 38 are indefinite.

Claims 8-16 depend from Claim 7; Claims 18-24 depend from Claim 17; and

5 Claims 26-37 depend from Claim 25. Thus, these dependent claims are similarly indefinite.

### ***Response to Arguments***

10 Applicant's arguments with respect to claims 7-36 have been considered but are moot in view of the new grounds of rejection.

### ***Pertinent Prior Art***

15 The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is as follows:

Pratt et al (US Pat. No. 5,314,948) teaches thermoplastic polyester, copolyester, and polyblend molding compositions impact-modified by glycidyl methacrylate grafted EPDM (Abstract). Pratt states that a most important concept of this invention resides in  
20 the inclusion of a fraction of a polyester matrix resin as a component for concurrent reaction with the components of this epoxy-functional reactive compound to produce what can be referred to as a "masterbatch", adapted subsequently to be blended with

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the remainder of the matrix resin (col. 15, lines 20-26). In the absence of the small amount of the polyester (matrix) resin, the impact modifier tends to agglomerate making it difficult in subsequent processing such as handling, measuring, and mixing the modifier with the matrix resin for uniform dispersion therein. The inclusion of the polyester resin in the reaction results in a pliable product that can be easily reduced to particulate form for handling and distributing in subsequent processing steps (col. 15, lines 17-36). In addition, it has been found that the presence of a small amount of the matrix resin as a component of the reaction results in reaction which differs somewhat from the reaction that takes place in the absence of the polyester, and results in a masterbatch which appears to provide for a better blend with the matrix resin with which it is subsequently combined to provide an improved thermoplastic composition having improved properties (col. 15, lines 37-45).

Thus, Pratt teaches that it is preferable to react a polyester with an epoxy-functional reactive compound prior to mixing with a polyester resin. Pratt further teaches that variations to this idea may be applied, such as the use of a variety of polyester resins and modifiers comprising different monomers (col. 15, line 63 – col. 16, line 14). Pratt does not disclose whether the polyester reacts fully or partially with the reactive compound.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

5 § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not  
10 mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15 Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT JONES JR. whose telephone number is (571)270-7733. The examiner can normally be reached on Monday - Thursday, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's  
20 supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

- 5 For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

10

RSJ

- 15 /David Wu/  
Supervisory Patent Examiner, Art Unit 1796